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March 30, 2001

TO: [redacted] File

THRU: Paul B. Baker, Team Lead

FROM: James D. Smith, Reclamation Specialist

RE: Technical Analysis of the Wild Horse Ridge Significant Revision, Co-Op Mining Company, Bear Canyon Mine, [redacted]5-SR98(1)- 4

SUMMARY:

Co-Op Mining	Date of Action	Division	Date of Action
Initial Submittal	December 18, 1998	Administratively Incomplete	July 07, 1999
2nd Submittal	28 September, 1999	Administratively Complete	November 16, 1999
		1st TA SR98 - 1	January 24, 2000
1st Revision	May 8, 2000	2nd TA SR98(1)-3	July 28, 2000
2nd Revision	January 04, 2001	3rd TA SR98(1)-4	This Document

The proposed Wild Horse Ridge amendment to the Bear Canyon Mine MRP is to expand the permit area to include Federal Leases U-020668 and U-38727 and fee coal owned by C.O.P. Development. This amendment is a significant revision to the MRP. The Wild Horse Ridge amendment was initially received by UDOGM on December 18, 1998 but was determined by UDOGM to be administratively incomplete. The permittee resubmitted on 28 September, 1999. A letter was sent to the Permittee November 16, 1999 indicating the Division had determined the amendment to be administratively complete. This is the third TA of the proposed Wild Horse Ridge amendment.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.22; R645-301-623, -301-724.

Analysis:

Changes to the text, mostly minor, have been made on pages 6-3, 6-6, 6-10, 6-11, 6-13, 6-16, 6-18, and 6-19 of Chapter 6. The proposed permit boundary as shown on revised Plates 6-1 through 6-12 includes federal leases U-020668 and U-38727 and fee coal owned by C.O.P. Development. Plate 6-1 is the Geology Map. Plates 6-2, 6-6, and 6-10 are overburden maps, Plates 6-3, 6-7, and 6-11 are isopach thickness maps, Plates 6-4, 6-8, 6-12 are structure contour maps, and Plates 6-5 and 6-9 are interseam isopach maps. Plates 6-2 through 6-12 are based on information from numerous borings and outcrop measurements: logs from many of these borings are in the MRP.

Plates 7-9 and 7-9A are stratigraphic cross-sections. Generalized logs for bore-holes T-1, T-2, T-3, T-5, SDH-1, SDH-2, and SDH-3 are shown on Plate 7-9 and those for WHR-1, WHR-2 , WHR-3, WHR-5, WHR-8, F-76-1, F-77-5, F-76-6, 77-3A, and F-77-11-A are on Plate 7-9A. The logs are not arranged on Plate 7-9A in a sequence that would usually be expected of a geologic cross section. 7-J1 and 7-J2 are stratigraphic cross-sections based on logs from bore holes SDH-1, SDH-2, MW-116, and MW-117. Well completion diagams for SDH-1, SDH-2, SDH-3,MW-116, and MW-117 are in Appendix 7-A, but the MRP does not contain original logs for any of these bore holes. The well completion diagram for MW-114 has been submitted for inclusion in Appendix 7-A. Except for F-76-4 and F-77-B (Plate 7-9A), Plate 6-2 shows the locations for all bore-holes on Plates 7-9, 7-9A, 7J-1, and 7J-2.

Appendix 7-A also contains logs for in-mine drill-holes 1- and 2-UP and 1-, 6-, 7-, 9-, 10-, 11-, 12-, 13-,and 14-DOWN and SBC-2, -3, and -4, but locations for these are not on a map. Locations for an "H" series of in-mine bore holes are shown on Plates 6-5 and 6-7, but there are no logs for these holes in the MRP.

Drill-hole DH-3 was abandoned in 1993 and replaced by DH-4. Bore-hole logs and well completion diagrams for DH-1, DH-2, DH-3, and DH-4 are in Appendix 7N-G (p. 6-13).

Logs for drill holes TS-6 through TS- 10 and TS-14 are in Appendix 6-A, but logs are not available for TS-12 and TS-13: there is apparently no TS-11. Locations for TS-6 through TS-10 are shown on Plates 6-9, 6-10, and 6-11.

There is no hydrology information available for the "WHR" series of bore-holes (Section 7.1-4, p. 7-20).

The current MRP includes a description of the areal and structural geology of the proposed permit and adjacent areas, including federal leases U-020668 and U-38727 and fee coal tract owned by C.O.P. Development. The description is based on maps and plans required as resource information for the plan, detailed site specific information, and geologic literature and practices. Additional geologic information has been submitted as part of Appendix 7J-I, Investigation of Groundwater and Surface Water Systems and Probable Hydrologic Consequences, a report by Mayo and Associates, LC. These descriptions show how areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water.

Coal isopach thickness maps indicate the Blind Canyon and Tank seams, but not the Hiawatha seam, are of minable thickness in portions of the Wild Horse Ridge area. The Hiawatha seam was previously thought to be continuous and of minable thickness, but recent drilling has revealed several sandstone channels that render the seam unminable in the vicinity of Bear and Fish Creeks (pp. 6-18 and 6-19 and Plate 6-7) and this seam is described as not minable in Table 3C-1. Revised Plates 3-4A and 3-4C show projected mining in the Blind Canyon and Tank seams, respectively, in the Wild Horse Ridge addition.

Subsidence is discussed in Appendix 3-C. Total calculated subsidence in the Wild Horse Ridge area is 7.3 feet, based on an average total thickness of 16.5 feet for the Tank and Blind Canyon seams: in the existing permit area, the calculated maximum subsidence is 14.1 feet based on an average total thickness of 22 feet for the Tank, Hiawatha, and Blind Canyon seams (Table 3C-1). Average thickness of the Blind Canyon seam is 9 feet and average depth is 1,200 feet, and for the Tank seam the averages are 7.5 feet thick and 950 feet deep.

The application includes geologic information in sufficient detail to assist in determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface and ground-water monitoring is necessary, and determining whether reclamation as required by the Utah Coal Mining Rules can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

At this time the Division does not require the collection, analysis, and description of additional geologic information to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards. The Permittee has made no request to the Division to waive in whole or in part the requirements of the bore hole information or analysis required of this section.

Findings:

Information on geologic resources is considered adequate to meet the requirements of this section.

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